

## WHAT IS CLAIMED IS:

1. A magnetic recording medium comprising a glass substrate having grooves on the surface thereof, an orientation-determining layer, a non-magnetic undercoat layer, a magnetic layer, and a protective film, the layers and film being successively formed on the substrate, wherein the orientation-determining layer contains at least one element selected from the group consisting of Co, Ni, and Fe and at least one element selected from the group consisting of W, Mo, Ta, and Nb.
2. A magnetic recording medium according to claim 1, wherein the orientation-determining layer contains at least one alloy selected from the group consisting of a Co-W-based alloy, a Co-Mo-based alloy, a Co-Ta-based alloy, a Co-Nb-based alloy, an Ni-Ta-based alloy, an Ni-Nb-based alloy, an Fe-W-based alloy, an Fe-Mo-based alloy, and an Fe-Nb-based alloy.
3. A magnetic recording medium according to claim 1 or 2, wherein the orientation-determining layer has a thickness falling within a range of 10 Å to 300 Å.
4. A magnetic recording medium according to claim 1 or 2, wherein the glass substrate is formed of amorphous glass.
5. A magnetic recording medium according to claim 1 or 2, wherein the grooves have a line density of at least 7,500 (lines/mm).
6. A magnetic recording medium according to claim 1 or 2,

wherein the magnetic anisotropy index of the magnetic layer (coercive force in a circumferential direction/coercive force in a radial direction) is at least 1.05.

7. A magnetic recording medium according to claim 1 or 2, wherein the magnetic anisotropy index of residual magnetization (residual magnetization in a circumferential direction/residual magnetization in a radial direction) is at least 1.05.

8. A magnetic recording medium according to claim 1 or 2, wherein the non-magnetic undercoat layer contains a Cr layer, or a Cr alloy layer containing at least one element selected from the group consisting of Ti, Mo, Al, Ta, W, Ni, B, Si, and V.

9. A magnetic recording medium according to claim 1 or 2, wherein the magnetic layer contains at least one alloy selected from the group consisting of a Co-Cr-Ta-based alloy, a Co-Cr-Pt-based alloy, a Co-Cr-Pt-Ta-based alloy, a Co-Cr-Pt-B-based alloy, and a Co-Cr-Pt-B-Y-based alloy, wherein Y represents Ta or Cu.

10. A magnetic recording and reproducing apparatus comprising a magnetic recording medium as recited in claim 1 or 2, and a magnetic head for recording of data onto the medium and for reproduction of the data therefrom.